

Fayetteville State University
College of Arts and Sciences
Department of Mathematics and Computer Science
CSC 120 - 01: Introduction to Programming Methodology
Fall 2009

I. Locator Information:

Instructor: Dr. Michael Almeida

Course # and Name: CSC 120, Section 01

Introduction to Programming Methodology

Semester Credit Hours: 3.00

Day and Time Class Meets: TR 9:30 – 10:45 am

Class Location: SBE 218

Total Contact Hours for Class: 46

Office Location: SBE 340

Office hours: M: 2:00-5:00 pm; W: 12:00-2:00 pm,

TR: 11:00 am-12:30 pm

Office Phone: 910-672-1161

Email address: malmeida@uncfsu.edu

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (username@uncfsu.edu) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail.

Rules and regulations governing the use of FSU email may be found at

<http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf>

Note: In case FSU must close for an emergency during the semester, instruction will continue using Blackboard.

II. Course Description: This course is the first course of a two-semester sequence that provides an overview of programming methodology and program writing skills. Topics include basic concepts of computer systems, problem solving and algorithm development, program structures, data types, program development, method and style, coding, debugging, testing, and documentation. *Prerequisite: CSC 105; MATH 129 or MATH 131 or higher.*

III. Disabled Student Services: In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); 910-672-1203.

IV. Textbook and other materials:

1. Required textbook: *Learning Computing with Robots* edited by Deepak Kumar. Free book available online as PDF file from http://wiki.roboteducation.org/Learning_Computing_With_Robots. We will use the most recent (i.e. Fall 2008) version. You can print the PDF file by following the instructions on the same webpage.
2. Required textbook: *Python Programming: An Introduction to Computer Science* by John Zelle, Franklin Beedle & Associates, 2004. ISBN 1-887902-99-6.
3. Optional textbook: *Think Python: An Introduction to Software Design* by Allen B. Downey. Free book available online as PDF file from <http://www.greenteapress.com/thinkpython/>. If needed you can print this file too.
4. Required material: at least 6 AA rechargeable batteries and a charger. You must purchase and bring these to labs.
5. Required material: IPRE Robot Kit. These will be handed out to you in class during lab sessions and have to be returned after that lab session is over. Optionally you can purchase one if you want to for \$200.00 from <http://www.amazon.com>.
6. Python Software + IDLE + Myro: This software is already installed in the labs. To install it in your personal computer read the manual at http://wiki.roboteducation.org/Myro_Installation_Manual

V. Student Learning Outcomes –

Upon completion of this course, students will:

1. be able to describe the components of a computer
2. be able to use an IDE to develop and execute a program
3. demonstrate how to use data types and variables in programs

4. be able to describe the differences among objects, classes, and methods
5. be able to construct objects
6. be able to look up Java API documentation
7. be able to specify the public interface of classes
8. be able to implement constructors and methods
9. be able to use different number types
10. be able to use constants
11. be able to use assignment, increment and decrement operations
12. be able to use arithmetic operations and mathematical functions
13. be able to use selection control structures in programs
14. be able to use repetition control structures in programs
15. be able to use arrays
16. be able to implement simple algorithms

VI. Course Requirements and Evaluation Criteria -

a. Grading Scale -

Grade	Total point range	Credit Hours	Quality Points	Meaning
A	90% – 100%	Hours attempted and earned	4 per credit hour;	Exceptionally high
B	80% – 89.99%	Hours attempted and earned	3 per credit hour	Good
C	65% – 79.99%	Hours attempted and earned	2 per credit hour	Satisfactory
D	55% – 64.99%	Hours attempted and earned	1 per credit hour	Marginally passing
F	below 55%	Hours attempted – Not earned	0 per credit hour	Failing
FN		Hours attempted – Not earned	0 per credit hour	Failing due to non-attendance. (Student registered, but <u>never</u> attended.)
W		Hours attempted – Not earned	No impact on GPA	Class withdrawal prior to deadline (see Academic Calendar)
P		Hours attempted and earned	No impact on GPA	Satisfactory - Assigned only in classes specified as Pass/Fail
WU		Hours attempted – Not earned	No impact on GPA	Withdrawal from all classes for semester or term
AU		Hours attempted – Not earned	No impact on GPA	Auditing

- b. Attendance Requirements – Students are expected to attend all class meetings, laboratories, and other instructional sessions for this course. Students are also expected to arrive to class on time and remain in class for the entire scheduled period. When students must miss class(es) for unavoidable reasons, i.e., illness, family emergencies, or participation in official university sponsored activities – they are responsible for informing faculty of the reasons for the absences, in advance if possible. Missed assignments, labs, quizzes and exams can only be made up for by explicit permission from the instructor. In order to receive this permission the student has to provide convincing evidence (e.g. doctor’s note) that the absence was due to an unavoidable reason. During the first half of the semester/term, faculty will assign an interim grade of “EA,” Excessive Absences, for students whose class absences exceed 10% of the total contact hours for the class. Students who receive EA interim grades must either withdraw from the class or resume attendance. Students who resume attendance must consult with the instructor about completion of missed assignments. The EA is not a final grade, so students who are assigned an interim grade of EA, but do not withdraw from the class, will receive a final grade based on the evaluation criteria for the class
- c. Graded Assignments and Value of Each Assignment -
 - i. Two tests worth 10% each for a total of 20%
 - ii. Final exam worth 20%
 - iii. Six programming projects worth a total of 54%.
 - iv. Class attendance and participation 6%.

- d. Policy on Missed or Late Assignments - tests and quizzes missed due to an unavoidable reason can be made up only with the instructor's permission. In order to receive this permission the student has to provide convincing evidence (e.g. doctor's note) that the absence was due to an unavoidable reason. There is a penalty of 5% for each day a project is overdue. Project submissions that are more than a week overdue will not be accepted for grading.
- e. Dishonesty in academic affairs – Acts of dishonesty in any work constitute academic misconduct. Such acts include cheating, plagiarism, misrepresentation, fabrication of information, and abetting any of the above. Plagiarism in particular presents pitfalls to be avoided: failure to document any words, ideas, or other contributions that do not originate with the author constitutes plagiarism. Widespread use of the World Wide Web (Internet) requires particular attention to proper documentation practices. Individual course syllabi offer additional clarification about requirements for proper documentation. Actions outlined in the Fayetteville State University Student Handbook under Disciplinary System and Procedures will be followed for incidents of academic misconduct. The handbook may be obtained from the Office of Student Affairs located in the Collins Administration Building. Non-disclosure or misrepresentation on applications and other university records will make students liable for disciplinary action, including possible expulsion from the university.

Please note: If these evaluation criteria must be revised because of extraordinary circumstances, the instructor will distribute a written amendment to the syllabus.

FSU Policy on Disruptive Behavior in the Classroom

The *Code of the University of North Carolina* (of which FSU is a constituent institution) and the *FSU Code of Student Conduct* affirm that all students have the right to receive instruction without interference from other students who disrupt classes.

FSU Core Curriculum Learning Outcome under Ethics and Civic Engagement (6.03): All students will “prepare themselves for responsible citizenship by fulfilling roles and responsibilities associated with membership in various organizations.” Each classroom is a mini-community. Students learn and demonstrate responsible citizenship by abiding by the rules of classroom behavior and respecting the rights all members of the class.

The FSU Policy on Disruptive Behavior (see FSU website for complete policy) identifies the following behaviors as disruptive:

1. Failure to respect the rights of other students to express their viewpoints by behaviors such as repeatedly interrupting others while they speak, using profanity and/or disrespectful names or labels for others, ridiculing others for their viewpoints, and other similar behaviors;
2. Excessive talking to other students while the faculty member or other students are presenting information or expressing their viewpoints.
3. Use of cell phones and other electronic devices
4. Overt inattentiveness (sleeping, reading newspapers)
5. Eating in class (except as permitted by the faculty member)
6. Threats or statements that jeopardize the safety of the student and others
7. Failure to follow reasonable requests of faculty members
8. Entering class late or leaving class early on regular basis
9. Others as specified by the instructor.

The instructor may take the following actions in response to disruptive behavior. Students should recognize that refusing to comply with reasonable requests from the faculty member is another incidence of disruptive behavior.

1. Direct student to cease disruptive behavior.
2. Direct student to change seating locations.
3. Require student to have individual conference with faculty member. At his meeting the faculty member will explain the consequences of continued disruptive behavior.
4. Dismiss class for the remainder of the period. (Must be reported to department chair.)
5. Lower the student's final exam by a maximum of one-letter grade.
6. File a complaint with the Dean of Students for more severe disciplinary action.

Students who believe the faculty member has unfairly applied the policy to them may make an appeal with the faculty member's department chair.

VII. Academic Support Resources – This course uses FSU Blackboard for online dissemination. Students will find most materials online within the Blackboard module for this course. Project submissions and most tests will be implemented through Blackboard so students are required to check the Blackboard course website and their email at least once a day.

VIII. Course Outline and Assignment Schedule*

WEEK	LECTURE TOPICS & ACTIVITIES	ADDITIONAL COMMENTS
FIRST DATES: 08/20 – 08/21	FIRST DAY OF CLASS. INTRODUCTION, COURSE OVERVIEW. BEGIN REVIEW OF PREVIOUS MATERIAL: ROBOT, PYTHON COMMANDS	LATE REGISTRATION BEGINS 08/20 CLASSES BEGIN 08/20
SECOND DATES: 08/24 – 08/28	REVIEW OF PREVIOUS MATERIAL CONTINUED: VARIABLES, ASSIGNMENT STATEMENTS, ITERATIVE STRUCTURES, FUNCTIONS, SELECTION STRUCTURES PROJECT 1 ASSIGNED	CLASS WITHDRAWAL BEGINS AND LAST DAY FOR DROP-ADD AND LATE REGISTRATION IS 08/26 INTERIM GRADING PERIOD BEGINS 08/27. FACULTY ASSIGN GRADES OF X (NO SHOW); EA (EXCESSIVE ABSENCES); F (FAILURE)
THIRD DATES: 08/31 – 09/04	CH. 3 COMPUTING WITH NUMBERS PROJECT 2 ASSIGNED	DEADLINE FOR X (NO-SHOW) GRADES. FACULTY ASSIGN X GRADE TO STUDENTS ON CLASS ROSTER, BUT WHO HAVE NEVER ATTENDED 09/01
FOURTH DATES: 09/07 – 09/11	Ch. 4 COMPUTING WITH STRINGS	LABOR DAY HOLIDAY 09/07
FIFTH DATES: 09/14 – 09/18	Ch. 5 OBJECTS AND GRAPHICS PROJECT 3 ASSIGNED	FALL CONVOCATION 09/15, 2:15 TO 3:30 PM
SIXTH DATES: 09/21 – 09/25	Ch. 9 SIMULATION AND DESIGN	
SEVENTH DATES: 09/28 – 10/02	Ch. 9 SIMULATION AND DESIGN PROJECT 4 ASSIGNED	
EIGHTH DATES: 10/05 – 10/09	TEST 1	MID TERM EXAMINATIONS BEGIN ON 10/08 INTERIM GRADING PERIOD ENDS. FACULTY ASSIGN INTERIM GRADES TO SHOW STUDENT STATUS AT MIDTERM 10/09
NINTH DATES: 10/12 – 10/16	Ch. 10 DEFINING CLASSES BREAK	MID TERM EXAMINATIONS END ON 10/14 MID TERM BREAK FROM 10/15 TO 10/16
TENTH DATES: 10/19 – 10/23	Ch. 10 DEFINING CLASSES PROJECT 5 ASSIGNED	
ELEVENTH DATES: 10/26 – 10/30	Ch. 11 DATA COLLECTIONS	DEADLINE FOR REMOVING INCOMPLETE GRADES FROM PREVIOUS SEMESTER AND WITHDRAWAL FROM CLASS IS 10/30
TWELFTH DATES: 11/02 – 11/06	Ch. 11 DATA COLLECTIONS	
THIRTEENTH DATES: 11/09 – 11/13	PROJECT 6 ASSIGNED TEST 2	VETERAN'S DAY HOLIDAY 11/11

FOURTEENTH DATES: 11/16 – 11/20	Ch. 12 OBJECT ORIENTED DESIGN	DEADLINE FOR UNIVERSITY WITHDRAWAL ON 11/18
FIFTEENTH DATES: 11/23 – 11/27	Ch. 12 OBJECT ORIENTED DESIGN	THANKSGIVING HOLIDAY 11/26 TO 11/27
SIXTEENTH DATES: 11/30 – 12/04	REVIEW	FINAL EXAMS FOR GRADUATING SENIORS BEGIN ON 11/30 TO 12/05 LAST DAY OF CLASSES IS 12/04
SEVENTEENTH DATES: 12/07 – 12/11	FINAL EXAM	FINAL GRADES FOR GRADUATING SENIORS DUE ON 12/07 FINAL EXAMS FOR STUDENTS NOT GRADUATING 12/05 TO 12/11

* This schedule is subject to change for the optimum benefit of the class as a whole. Therefore it is important to stay alert, read your email and read the discussion boards regularly.

IX. Teaching Strategies – This course has both lecture and lab sessions that will be held in the same class room. Lab sessions are mostly discussion oriented, interactive problem solving sessions. Lecture, while also discussion oriented will provide theoretical knowledge that supports the lab sessions and project work. This course is about programming with robots as a teaching context, so timely and successful completion of programming projects is of the highest importance.

X. Bibliography -

1. "Object-Oriented Programming in Python" Michael Goldwasser, David Letscher. ISBN: 0136150314. Prentice Hall Publishing. (October 2007)
2. "Introduction to Computing and Programming Using Python: A Multimedia Approach" Mark Guzdial. ISBN: 0131176552
3. "Core Python Programming" Wesley J. Chun. ISBN: 0132269937 (2nd ed.); 0130260363 (1st ed.). Prentice Hall PTR / Pearson Education
4. "Dive Into Python: Python for Experienced Programmers" Mark Pilgrim. ISBN: 1590593561, Apress.
5. "Learning Python" Mark Lutz. ISBN: 0596513984, O'Reilly & Associates, 701 pages (October 2007)
6. "The Quick Python Book" Daryl Harms, Kenneth McDonald. ISBN: 1884777740, Manning Publications, (October 1999)
7. "Learn to Program Using Python" Alan Gauld. ISBN: 0201709384, Addison-Wesley, (December, 2000)
8. "Programming Python (Third Edition)" Mark Lutz. ISBN: 0596009259, O'Reilly & Associates, (August, 2006)
9. "Python Standard Library" Fredrik Lundh. ISBN: 0596000960, O'Reilly & Associates, (February 2001)
10. "Web Programming in Python: Techniques for Integrating Linux, Apache, and MySQL" George K. Thiruvathukal, John Shafae and Thomas Christopher. ISBN: 0130410659, Prentice Hall, (October 2001)
11. "Programming With Python" Tim Altom with Mitch Chapman. ISBN: 0761523340, Prima Publishing, (October 1999)
12. "Python Developer's Handbook" Andre Lessa. ISBN: 0672319942, Sams, (December 2000)
13. "Python How to Program" Harvey M Deitel, Paul J Deitel, Jonathan Liperi, Ben Wiedermann. ISBN: 0130923613, Prentice Hall, (2002)
14. "Text Processing in Python" David Mertz. The free text is available at: <http://gnosis.cx/TPiP/>
15. "Python Programming Patterns" Thomas Christopher. ISBN: 0130409561. Prentice-Hall, 2001
16. "Python Programming for the absolute beginner" Michael Dawson. ISBN: 1592000738. Premier Press,(2003)
17. "A Byte of Python" Swaroop C H. This book can be read online or downloaded from <http://www.byteofpython.info/>
18. "Practical Python" Magnus Lie Hetland. ISBN: 1590590066, APress (August 2002)
19. "Beginning Python: From Novice to Professional" Magnus Lie Hetland. ISBN: 1-59059-519-x, APress (September 2005)
20. "Computer Programming is Fun!" David Handy, Handy Software and Publishing (April 2005)
21. "Problem Solving with Algorithms and Data Structures" Brad Miller and David Ranum. ISBN: 1590280539, Franklin Beedle & Associates, December 2005
22. "Python First: The Joy of Success" Atanas Radenski. ISBN: 978159526-713-9, Llumina Press, April 2007
23. David Flanagan. Java In A Nutshell, 5th edition. O'Reilly Media, 2005. ISBN: 0596007736.
24. Bruce Eckel. Thinking in Java, 4th edition. Prentice Hall PTR, 2006. ISBN: 0131872486.

25. Cay Horstmann and Gary Cornell. Core Java(TM) 2, Volume I—Fundamentals, 7th edition. Prentice Hall PTR, 2004. ISBN: 0131482025.
26. Harvey M. Deitel and Paul J. Deitel. Java How to Program, 6th edition. Prentice Hall, 2004. ISBN: 0131483986.
27. Herbert Schildt. Java: The Complete Reference, J2SE 5th edition. McGraw-Hill Osborne Media, 2004. ISBN: 0072230738.
28. W. Clay Richardson, Donald Avondolio, Joe Vitale, Scot Schrager, Mark W. Mitchell, Jeff Scanlon. Professional Java, JDK 5th edition. Wrox Press, 2005. ISBN: 0764574868.
29. Y. Daniel Liang. Introduction to Java Programming, Comprehensive 5th edition. Prentice Hall, 2004. ISBN: 0131489526.
30. Joshua Bloch. Effective Java Programming Language Guide, 1st edition. Addison-Wesley Professional, 2001. ISBN: 0201310058.
31. D.S. Malik. Java Programming: From Problem Analysis to Program Design, 2nd edition. Course Technology, 2005. ISBN: 0619216085.
32. Andrew Davison. Killer Game Programming in Java. O'Reilly Media, 2005. ISBN: 0596007302.
33. Harvey M. Deitel, Paul J. Deitel, Deitel, Associates. Simply Java Programming: An Application-Driven Tutorial Approach. Prentice Hall, 2003. ISBN: 0131426486.
34. Douglas Lea. Concurrent Programming in Java(TM): Design Principles and Patterns, 3rd edition. Addison-Wesley, 2006. ISBN: 0321256174.
35. Gary B. Shelly, Thomas J. Cashman, Joy L. Starks, Michael Mick . Java Programming: Comprehensive Concepts and Techniques, 2nd edition. Course Technology, 2003. ISBN: 0789568330.
36. D.S. Malik. Java Programming: Program Design Including Data Structures, 1st edition. Course Technology, 2005. ISBN: 1418835404.
37. Joyce Farrell. Java Programming, 3rd edition. Course Technology, 2005. ISBN: 0619213191.